

RESTRICTION AND PREVENTION
OF

SCARLET FEVER.

Sometimes called "Scarlatina," "Scarlet Rash," "Canker Rash," or "Rash Fever."

DOCUMENT ISSUED BY THE MICHIGAN STATE BOARD OF HEALTH.

110. Fourteenth Edition (10,000 copies), March, 1899. 206,000 Printed.

1. Scarlet fever is one of the most contagious diseases. One attack usually prevents subsequent attacks. The greatest number of deaths from this disease is of children under ten years of age. Adult persons sometimes have the disease; and even though they have it in many instances in a milder form, yet they may communicate the disease in a fatal form to children. The isolation of those mildly sick with, and convalescent from, scarlet fever is important.

2. Scarlet fever is believed to be caused by a special contagium or poison which may be conveyed, to persons previously unaffected, by personal contact, by infected clothing, rags, hair, or paper, or by any of the discharges from the body of a person afflicted with the disease.

3. The discharges from the throat, nose, and mouth are considered extremely dangerous, but those from the skin, eyes, ears, kidneys, and bowels, are also dangerous, and remain so for a considerable time.

4. Communication. It is believed that the disease may be communicated by a person recovering therefrom so long as the usual subsequent scaling or peeling of the skin continues, which sometimes is not completed before the lapse of seventy or eighty days. The poison may also remain in clothing, etc., for a long time, possibly for years, especially if woolen and packed away in drawers or trunks.

5. Filth, uncleanness, and imperfect ventilation may increase the danger of spreading the disease.

6. Period of incubation. *The interval of time* which may elapse after exposure to the contagium of scarlet fever and during which a susceptible person so exposed may expect to be taken sick with the disease, varies from one to fourteen days.

7. Separation of the sick from the well. Whenever a child has sore throat and fever, and especially when this is accompanied by a rash on the body, the child should immediately be isolated as completely as possible from other members of the household, and from other persons, until a physician has seen it and has determined whether it has scarlet fever. All persons known to be sick with this disease (even those but mildly sick), should be promptly and thoroughly isolated from the public.

That this is of more importance than in the case of small-pox is indicated by the fact of the much greater number of cases of sickness and of deaths from scarlet fever,—a disease for which no such preventive as vaccination is yet known.

8. Persons who are attending upon children or other persons suffering from scarlet fever, and also the members of the patient's family, should not mingle with other people nor permit the entrance of children into their house.

9. Plain and distinct notices should be placed on the premises or house in which there is a person sick with scarlet fever; the placard should remain so long as there is in the premises contagium which may communicate the disease; and no child that has not had the disease should be allowed to enter, or to associate with persons who do enter such house or room.

10. Children believed to be uninfected may be sent away from the house in which there is scarlet fever, to families in which there are no persons liable to the disease, or to previously disinfected convalescent wards in hospitals; but in either case they should be isolated from the public until the expiration of the period of incubation, counting from the time of their removal.

11. Householders and physicians must immediately give notice of the first case, and of every case of scarlet fever, to the health officer. This is required by sections 1734 and 1735, Compiled Laws of Michigan, 1871 (§ 1675 as amended by Act approved March 28, 1889, and § 1676, Howell's Statutes, as amended by Act No. 11, Laws of 1883, and by Act No. 158, Laws of 1895), which are as follows:—

(1734.) SEC. 43. Whenever any householder, hotel keeper, keeper of a boarding house or tenant shall know, or shall be informed by a physician, or shall have reason to believe that any person in his family, hotel, boarding house or premises is taken sick with small-pox, cholera, diphtheria, scarlet fever, or any other disease dangerous to the public health, he shall immediately give notice in writing thereof to the health officer of the township, city or village in which he resides. Said notice shall state the name of the person sick, the name of the disease if known, the name of the householder, hotel keeper, keeper of boarding house or tenant giving the notice, and shall, by street and number, or otherwise, sufficiently designate the house in which he resides or the room in which the sick person may be; and if he shall refuse or willfully neglect immediately to give such notice, he shall be deemed guilty of a misdemeanor, and upon conviction thereof, he shall be punished by a fine of not exceeding one hundred dollars and the costs of prosecution; or in default of payment thereof, by imprisonment not exceeding ninety days in the county jail, in the discretion of the court: *Provided*, That such fine or imprisonment shall not be enforced if the physician in attendance has given to the health officer or other officer hereinbefore mentioned an immediate notice of said sick person and true name of the disease, in accordance with the requirements of this section. § 1675, Howell's Statutes.—*As amended by Act 37, Laws of 1889, and by Act No. 158, Laws of 1895.*

(1735.) SEC. 44. Whenever any physician shall know that any person whom he is called to visit, or who is brought to him for examination, is infected with small-pox, cholera, diphtheria, scarlet fever, or any other disease dangerous to the public health, he shall immediately give notice thereof to the health officer of the township, city or village in which the sick person may be; and to the householder, hotel keeper, keeper of a boarding house, or tenant within whose house or rooms the sick person may be. The notice to the officer of the board of health shall state the name of the disease, the name, age and sex of the person sick, also the name of the physician giving the notice; and shall, by street and number, or otherwise, sufficiently designate the house or room in which said sick person may be. And every physician and person acting as a physician, who shall refuse or neglect immediately to give such notice shall forfeit for each such offense a sum not less than ten nor more than fifty dollars: *Provided*, That this penalty shall not be enforced against a physician if another physician in attendance has given to the health officer, or other officer hereinbefore mentioned, an immediate notice of said sick person, and the true name of the disease, in accordance with the requirements of this section.—§ 1676, Howell's Statutes, as amended by Act No. 11, Laws of 1883, and by Act No. 158, Laws of 1895.

12. Upon receipt of such notice, the local board of health has duties to perform in taking measures to restrict the spread of the disease, which it is a great violation of public trust for the board to neglect or postpone. The law is very plain as to the nature and the importance of these duties. Three sections of the law are as follows:—

(1732.) SEC. 41. When the small-pox or any other disease dangerous to the public health, is found to exist in any township, the board of health shall use all possible care to prevent the spreading of the infection, and to give public notice of infected places to travelers by such means as in their judgment shall be most effectual for the common safety. § 1673 Howell's statutes.

(1706.) SEC. 15. When any person coming from abroad, or residing in any township within this State, shall be infected, or shall lately before have been infected, with the small-pox, or other sickness dangerous to the public health, the board of health of the township where such person may be shall make effectual provision in the manner in which they shall judge best for the safety of the inhabitants, by removing such sick or infected person to a separate house, if it can be done without danger to his health, and by providing nurses and other assistance and necessities, which shall be at the charge of the person himself, his parents, or other persons who may be liable for his support, if person or able; otherwise at the charge of the county to which he belongs: *Provided*, That the health board shall keep and render an itemized and separate statement of expenses 3 Mich. Rep., incurred in so caring for each person. § 1647 Howell's statutes, as amended by Act No. 475, approved April 28, 1895.

(1707.) SEC. 16. If any such infected person cannot be removed without danger to his health, the board of health shall make provision for him as directed in the preceding case infected section, in the house in which he may be, and in such case they may cause the persons in contact the neighborhood to be removed, and may take such other measures as they may deem necessary for the safety of the inhabitants. § 1648 Howell's statutes.

* Supervisors must prosecute for all such forfeitures; township officers must give notice to supervisor; prosecuting attorney to conduct suit if requested; see sections 8439, 8440 and 8442, Howell's Annotated Statutes. Health officers of villages and cities must notify prosecuting attorney of all violations of this section.—see § 1684, Howell's Statutes; the prosecuting attorney must prosecute for all such forfeitures incurred within his county.—see § 8442, Howell's Statutes.

13. Some of the duties of the local board of health, and of the health officer, relative to the restriction and prevention of diseases, are treated in Circular 120 from the State Board of Health. In order that no time may be lost, it is the duty of every board of health to make provision for prompt action by its health officer, authorizing and directing him to be prepared at all times, as executive officer of the board, to take certain action without waiting for a meeting of the board, whenever a case of scarlet fever, diphtheria, small-pox, or other disease dangerous to the public health occurs within its jurisdiction. Some of these duties of the health officer may be briefly suggested as follows: He should—

- a. Promptly investigate the subject, and report to the Secretary of the State Board of Health.
- b. Secure isolation of those sick with or exposed to such a disease.
- c. Give notice of infected places, by placard, and otherwise if necessary.
- d. Notify teachers or superintendents of schools.
- e. Regulate funerals of persons dead from scarlet fever, etc.
- f. Disinfect rooms, clothing and premises.

These duties are required by Act No. 137, Laws of 1883. This act, as amended by Act No. 34, Laws of 1889, provides that "whoever shall knowingly violate the provisions of section one of this act, or the orders of the health officer made in accordance therewith, shall be deemed guilty of a misdemeanor, and, upon conviction thereof he shall be punished by a fine not exceeding one hundred dollars, and the costs of prosecution, or in default of payment thereof, by imprisonment not exceeding ninety days in the county jail, in the discretion of the court."

14. The local board of health and the physician in charge of cases of this disease should coöperate for its restriction. The local board of health should especially guard against its spread by cases where no physician is employed.

15. The room in which one sick with this disease is to be placed should previously be cleaned of all needless clothing, carpets, drapery, and other materials likely to harbor the poison of the disease, except such articles as are essential to the well-being of the patient, but, except after thorough disinfection, nothing should be moved about which has already been exposed to the contagium of the disease. The sick room may have no carpet, or only pieces which can afterwards be destroyed. Provisions should be made for the introduction of a liberal supply of fresh air and the continual change of the air of the room without sensible currents or drafts.

16. Handkerchiefs, that need to be saved, should not be used by the patient; small pieces of rag should be substituted therefor, and after being once used should be immediately burned.

17. Soiled clothing, towels, bed-linen, etc., on removal from the patient, should at once, before removal from the room, be placed in a pail or a tub of zinc-solution, made in proportions as follows: water, one gallon; sulphate of zinc, four ounces; common salt, two ounces.

18. The discharges from the throat, nose, mouth, and from the kidneys and bowels of the patient should be received into vessels containing chlorinated lime (commonly called "chloride of lime"),* or the zinc-solution

*Carbolic acid in dilute form, as generally used, is not believed to be a disinfectant, and there is question of the reliability of sulphate of iron. "Standard Solution No. 1," recommended by a committee of the American Public Health Association, is probably the most reliable, and is made as follows: To each gallon of soft water add four ounces of chloride of lime of the best quality, which should contain at least 25 per cent of available chlorine. "Use one quart of this solution for the disinfection of each discharge from the bowels."

mentioned in paragraph 17, and in cities where sewers are used, thrown into the water-closet, elsewhere the same should be buried at once at least 100 feet distant from any well, and should not by any means be thrown into a running stream, nor into a cesspool or privy, except after having been thoroughly disinfected. Discharges from the bladder and bowels may be received on old cloths, which should immediately be burned—or disinfected and buried. All vessels should be kept scrupulously clean and disinfected. Discharges from the nose, ears, etc., may be received on soft rags or pieces of cloth, which should immediately be burned.

19. If the attending physician shall think best for the patient, an effort to prevent the spreading of the contagious particles thrown off from the skin may be made by anointing the body with oil, vaseline, etc., as the physician may direct.

20. All cups, glasses, spoons, etc., used in the sick-room, should at once on removal from the room be washed in the zinc-solution mentioned in paragraph 17, and afterwards in hot water, before being used by any other person.

21. Food and drink that have been in the sick-room, or otherwise infected with scarlet fever, should be destroyed or buried. It should not be put in the swill-barrel.

22. Perfect cleanliness of nurses and attendants should be enjoined and secured. As the hands of nurses of necessity become frequently contaminated by the poison of the disease, a good supply of towels and basins,—one containing a solution of chlorinated soda (Labarraque's solution), chlorinated lime, or the disinfecting zinc-solution, and another for plain soap and water,—should always be at hand and freely used.

23. Persons recovering from scarlet fever should be considered dangerous, and therefore should not attend school, church, or any public assembly, or use any public conveyance, so long as any scaling or peeling of the skin (see paragraph 4), soreness of the eyes or air-passages, or symptoms of dropsy remain. A person recovering from scarlet fever should not thus endanger the public health nor appear in public until after having taken four times, at intervals of two days, a thorough bath. The hair should be thoroughly washed. This cleansing, however, should be deferred until the physician in charge considers it prudent.

After recovery from scarlet fever, no person should appear in public wearing the same clothing worn while sick with or recovering from this disease, except such clothing as has been thoroughly disinfected, and this without regard to the time which has elapsed since recovery. Nor should a person from premises in which there is or has been a case of scarlet fever attend any school, Sunday-school, church, or public assembly, or be permitted by the health authorities or by the school board to do so, until after disinfection of such premises and of the clothing worn by such person if it shall have been exposed to the contagion of the disease.

24. The body of a person who has died of scarlet fever should be wrapped in a cloth wet with a zinc-solution of double the strength stated in paragraph 17; and, with as little delay as possible, be privately buried.

25. In order to prevent attendance at the funeral or visits to the house, newspaper notices of such deaths should state that the deceased person died of scarlet fever.

26. Burial of the dead from scarlet fever should be private, and the body should not be exposed to view.

DESTRUCTION OR DISPOSAL OF CLOTHING, BOOKS, FURS, ETC.

27. **Clothing, carpets, curtains, furniture,** and other substances that are to be destroyed should be dealt with in a way to avoid conveying the poison to any person in the process; they should not be simply thrown away, or into some stream or body of water; and if burned should be completely burned and not partly burned and partly warmed or dealt with in a way to spread the poison of the disease. The glowing furnace under a large engine-boiler, or a quick, strong fire in the open air, far from dwellings, is a good place for the burning.

28. **All infected substances which are not destroyed,** should be either thoroughly boiled, subjected to a dry heat of 250° F. in a disinfecting oven, or be thoroughly exposed to formaldehyde gas, or to fumes of burning sulphur, and afterwards exposed to open air currents for some hours, or days if practicable. Books and furs that have been used or handled by those convalescing from this disease are particularly liable to convey the poison to children who have never had the disease. Great care should be used to thoroughly disinfect any such articles that are not destroyed; and caution should be exercised before allowing children who have not had scarlet fever to handle any such articles that have been used by persons liable to communicate the disease.

DISINFECTION OF ROOMS, CLOTHING, ETC.

29. **Aerial disinfection** can be completely and entirely effectual only in the absence of living persons, as heat or fumes strong enough for the purpose are destructive of human life. This need not deter from doing so much as is possible, without injury to sick persons, for the purification of the air of rooms occupied by them,—a liberal supply of pure air should be secured; but after the death or recovery from scarlet fever, the room in which there has been a case of this disease, the furniture, and other contents not to be destroyed, should be thoroughly exposed for several hours to formaldehyde gas, or to fumes of burning sulphur, and then, if possible, it should for several hours or days be exposed to currents of fresh air.

Because of the law of diffusion of gases, and the numerous crevices through which sulphur fumes may pass, the fumes do not remain in a room sufficiently strong long enough, unless the combustion of sulphur is somewhat rapid. It should be rapid, and continue a considerable time. The best results are obtained by using roll brimstone broken up, or flowers of sulphur, burning the sulphur in shallow pans of sufficient number and size to rapidly fill the room with the fumes, and having quantities sufficient to last for several hours. Experience of the health officers in Michigan, seems to have demonstrated that, in the ordinary homes of the people, in the manner above mentioned, and *without the presence of the vapor of water*, the specific cause of scarlet fever is rendered incapable of causing scarlet fever. This is a very important fact, because it enables us to disinfect rooms without the destruction of much property which would be entirely ruined if the vapor of water were present.

Experiments by a member of this State Board, with germs of other diseases than scarlet fever, indicate that formaldehyde gas is even more reliable than sulphurous fumes as a disinfectant. By means of a still, devised by him, the solution of formaldehyde may be distilled through the keyhole, using eight ounces of the solution to each thousand

cubic feet of space in the room to be disinfected. "Teachers' Sanitary Bulletin" No. 9, December, 1898, issued by this State Board of Health, contains details of formaldehyde disinfection.

30. When a room and contents are to be disinfected, all articles therein should be spread out so as to expose the greatest amount of surface to the action of the disinfectant, and all openings to the rooms should be closed.

a. Because of the innumerable ways in which the contagium may be scattered about the house and premises where there has been for some little time a case of scarlet fever, the entire house and out-buildings, including cellar, garret, wood-shed, and privy, will usually need to be disinfected, and always should be aired by opening them to the air for several days as thoroughly as possible.

b. Rooms to be disinfected must be vacated. Heavy clothing, blankets, bedding, and other articles that cannot be treated with the zinc-solution, should be spread out so as to be thoroughly exposed during fumigation, which should take place in the room where the clothing, etc., have been used in connection with the patient. For a room about ten feet square, at least three pounds of sulphur should be used; for larger rooms, proportionately increased quantities, at the rate of three pounds for each 1,000 cubic feet of air space.

c. Close all openings into the room as tight as possible, place the sulphur in an iron pot or pan supported upon bricks, set it on fire by hot coals or with the aid of a spoonful of alcohol lighted by a match, be careful not to breathe the fumes of the burning sulphur, and when certain the sulphur is burning well, leave the room, close the door, and allow the room to be closed for twenty-four hours.

d. Care should be taken to secure the complete burning of as much of the sulphur as possible. To avoid danger of fire, the iron pot or pan in which the sulphur is to be burned should be free from leaks, and should be placed over water in a tub or pan.

e. *Body and bed clothing, etc.*—It is best to burn all articles of small value which have been in contact with persons sick with scarlet fever. Articles too valuable to be destroyed should be exposed in a disinfecting-oven for one hour to a moist heat of 212° F. or a dry heat of from 240° F. to 250° F., or be treated as follows: (See also paragraphs 27 and 28).

f. Cotton, linen, flannels, blankets, etc., should be treated with the boiling-hot zinc-solution, introducing them piece by piece, securing thorough wetting and boiling for at least half an hour. Heavy woolen clothing, silks, furs, stuffed bed covers, beds, and other articles which cannot be treated with the zinc-solution, should be hung in the room during fumigation, pockets being turned inside out and the whole garment being thoroughly exposed. Afterward they should be hung in the open air, beaten and shaken. Carpets are best fumigated on the floor, but should afterward be removed to the open air and thoroughly beaten. Pillows, beds, stuffed mattresses, upholstered furniture, etc., after being disinfected on the outside, may be cut open and their contents again exposed to fumes of burning sulphur. In no case should the thorough disinfection of clothing, bedding, etc., be omitted. Infected clothing and bedding have been known to communicate scarlet fever months after their infection.

31. Fresh air.—Although not so active for the destruction of the contagium as is sulphurous acid gas, pure air, in liberal amount, is very useful for the dilution of the poison of the disease; it should be employed freely;

but with this as with other procedures for the safety of the unaffected, great care should be taken not to increase the danger to those already sick, who are usually endangered by exposure to drafts of cold air, and this is especially true of persons convalescing from scarlet fever.

TEMPORARY SHELTER DURING DISINFECTION.

32. Disinfection of a room always necessitates vacating it, and sometimes makes it impossible to remain in adjoining rooms, therefore, in some cases it seems essential to have hospital, tent, or other temporary shelter for the inmates of infected houses, where bathing, disinfection and washing can be done while such houses are being disinfected and put in order. On this subject local boards of health should be consulted, and should be prepared to act, in accordance with § 1671, Howell's Statutes.

HOW TO AVOID AND PREVENT SCARLET FEVER.

33. Avoid the special contagium of the disease. This is especially important to be observed by children and all whose throats are sore from any cause. Children under ten years of age are in much greater danger of death from scarlet fever than are adults; but adult persons often get and spread the disease, and sometimes die from it. Mild cases in adults may thus cause fatal cases among children. Because of these facts it is frequently dangerous for children to go where adult persons go with almost perfect safety to themselves.

34. Do not let a child go near a case of scarlet fever. Do not permit any person or animal to come, or anything to be brought, directly from a case of scarlet fever to a child. Unless your services are needed, keep away from the disease yourself. If you do visit a case, bathe yourself and change and disinfect your clothing before you go where there is a child.

35. It is probable that the contagium of scarlet fever may retain its virulence for some time, and be carried a long distance in various substances and articles in which it may have found lodgement. Do not permit a child to enter a privy or water-closet, or breathe the air from a privy, water-closet, cesspool, or sewer, into which non-disinfected discharges from persons sick with scarlet fever have entered, nor to drink water or milk which has been exposed to such air.

36. Do not permit a child to ride in a hack or other closed carriage in which has been a person sick with scarlet fever, except the carriage has since been thoroughly disinfected with fumes of burning sulphur, as specified in paragraphs 29 and 30.

37. Among the conditions external to the body liable to spread scarlet fever, perhaps the most common is the inhalation of the contagium given off from an *infected substance or person*; but all influences which cause sore throats probably tend to promote the taking and spreading of this disease. Because of this and as a means of lessening the danger of contracting other diseases, the following precautions should always be taken, but more particularly during the prevalence of any such diseases as scarlet fever:—

38. Avoid exposure to wind and to breathing cold, dry air; also the use of strong vinegar or any other substance which tends to make the throat raw or tender.

39. Do not wear or handle clothing worn by persons during their sickness or convalescence from scarlet fever.

40. Beware of any person who has a sore throat. Do not kiss such a person, nor take the breath of such a person. Do not drink from the same cup, nor use any article that has been used by a person sick with this disease.

41. Beware of crowded assemblies in unventilated rooms.

42. Do not permit a child to drink water or take food which comes from a source that renders it liable to contain something derived from a person sick with scarlet fever.

43. Act 15, laws of 1891, provides a penalty of "a fine of not less than twenty-five dollars, nor more than one hundred dollars, or by imprisonment in the county jail not less than twenty days, nor more than ninety days," for any person who shall knowingly or willfully subject, or be instrumental in subjecting, another person to the danger of contracting small-pox, diphtheria or scarlet fever.

44. An Act approved March 29, 1895, makes it a misdemeanor, punishable by fine or imprisonment, for any person sick with scarlet fever or any other dangerous communicable disease, any corpse dead of such disease, or any article liable to convey any such disease, to come or be brought into any township, city, or village in Michigan, without the special permit of the board of health, or of the health officer of said township, city, or village and then only under the supervision of said health officer.

The following is a proposed form:—

HEALTH OFFICER'S CERTIFICATE OF FREEDOM FROM LIABILITY TO COMMUNICATE SCARLET FEVER.

I hereby certify that _____ has entirely recovered from scarlet fever, the date of recovery being _____, 189___; that disinfection of the premises, where the disease has been, occurred _____, 189___; that the period of desquamation ceased _____, 189___; and that, after the peeling and scaling of the skin had ceased, the patient's clothing has been disinfected, _____ namely, on _____, 189___; and that he is now free from liability to communicate scarlet fever, and is at liberty to attend school, church and public assemblies.

Health officer of the _____ of _____

(Township, city or village.)

_____, Mich., _____, 189___

With a view of lessening the number of cases and deaths from scarlet fever in Michigan, the foregoing is published by the STATE BOARD OF HEALTH for free distribution throughout the State, especially to officers and members of local boards of health. Physicians being to some extent the custodians and conservators of the public health, copies of this document are also sent to physicians in Michigan, in the hope that they will aid in diffusing among the people such knowledge of the nature of scarlet fever as will enable the people better to cooperate with them and with Boards of Health for the restriction of the disease and a decrease of sickness and deaths therefrom.

It cannot be expected that the distribution by the State Board will reach all of the more than two millions of people in Michigan, therefore the State Board of Health recommends that local boards of health procure and distribute copies of this document within their health districts when scarlet fever is near, especially to all neighbors of houses placarded for scarlet fever.

Any communication upon the subject may be addressed to: OFFICE OF STATE BOARD OF HEALTH, LANSING, MICHIGAN, from which, on application, any person may obtain a copy of this document, or of a similar document on the Restriction and Prevention of Diphtheria.

In order that this document may do the greatest possible good, it is hoped that each one who receives it will not only make such use of it as will tend to disseminate most widely the suggestions and statements of fact contained therein, but will also act for the restriction or prevention of this disease in accordance with its suggestions, or by other effective measures.

After reading this document with sufficient care to remember the principles involved, please preserve it for future reference.